

SEQUENCE LISTING

(1) GENERAL INFORMATION:

(i) APPLICANT:

- (A) NAME: Novartis AG
- (B) STREET: Schwarzwaldallee 215
- (C) CITY: Basel
- (E) COUNTRY: Switzerland
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(ii) TITLE OF INVENTION: 2'-Substituted nucleosides and
oligonucleotide derivatives

(iii) NUMBER OF SEQUENCES: 22

(iv) COMPUTER READABLE FORM:

- (A) MEDIUM TYPE: Floppy disk
- (B) COMPUTER: IBM PC compatible
- (C) OPERATING SYSTEM: PC-DOS/MS-DOS
- (D) SOFTWARE: PatentIn Release #1.0, Version #1.30 (EPO)

(2) INFORMATION FOR SEQ ID NO: 1:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 20 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: mRNA

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 1:

AAUGCAUGUC ACAGGCGGGA

20

(2) INFORMATION FOR SEQ ID NO: 2:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 20 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: other nucleic acid

(A) DESCRIPTION: /desc = "oligonucleotide"

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 2:

TCCCGCCTGT GACATGCATT

20

(2) INFORMATION FOR SEQ ID NO: 3:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 15 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: other nucleic acid

(A) DESCRIPTION: /desc = "oligonucleotide"

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION:5
- (D) OTHER INFORMATION:/note= "2'-substituted sugar"

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 3:

TTTTTCTCTC TCTCT

15

(2) INFORMATION FOR SEQ ID NO: 4:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 15 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: other nucleic acid

- (A) DESCRIPTION: /desc = "oligonucleotide"

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION:5
- (D) OTHER INFORMATION:/note= "2'-substituted sugar"

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION:7
- (D) OTHER INFORMATION:/note= "2'-substituted sugar"

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION:9
- (D) OTHER INFORMATION:/note= "2'-substituted sugar"

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION:11
- (D) OTHER INFORMATION:/note= "2'-substituted sugar"

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION:13
- (D) OTHER INFORMATION:/note= "2'-substituted sugar"

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 4:

TTTTCTCTC TCTCT

15

(2) INFORMATION FOR SEQ ID NO: 5:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 16 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: other nucleic acid

- (A) DESCRIPTION: /desc = "oligonucleotide"

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION:1
- (D) OTHER INFORMATION:/note= "2'-substituted sugar"

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION:7
- (D) OTHER INFORMATION:/note= "2'-substituted sugar"

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION:9
- (D) OTHER INFORMATION:/note= "2'-substituted sugar"

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION:15
- (D) OTHER INFORMATION:/note= "2'-substituted sugar"

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 5:

TCCAGGTGTC CGCATC

16

(2) INFORMATION FOR SEQ ID NO: 6:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 15 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: other nucleic acid

- (A) DESCRIPTION: /desc = "oligonucleotide"

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION:1..5
- (D) OTHER INFORMATION:/note= "2'-substituted sugar"

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 6:

TTTTTCTCTC TCTCT

15

(2) INFORMATION FOR SEQ ID NO: 7:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 15 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: other nucleic acid

- (A) DESCRIPTION: /desc = "oligonucleotide"

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION:5
- (D) OTHER INFORMATION:/note= "2'-substituted sugar"

(ix) FEATURE:

- (A) NAME/KEY: modified_base
- (B) LOCATION:6
- (D) OTHER INFORMATION:/mod_base= OTHER
/note= "5-methylcytosine"

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION:6
- (D) OTHER INFORMATION:/note= "2'-substituted sugar"

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION:7
- (D) OTHER INFORMATION:/note= "2'-substituted sugar"

(ix) FEATURE:

- (A) NAME/KEY: modified_base
- (B) LOCATION:8
- (D) OTHER INFORMATION:/mod_base= OTHER

/note= "5-methylcytosine"

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION:8
- (D) OTHER INFORMATION:/note= "2'-substituted sugar"

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION:9
- (D) OTHER INFORMATION:/note= "2'-substituted sugar"

(ix) FEATURE:

- (A) NAME/KEY: modified_base
- (B) LOCATION:10
- (D) OTHER INFORMATION:/mod_base= OTHER
/note= "5-methylcytosine"

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION:10
- (D) OTHER INFORMATION:/note= "2-substituted sugar"

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION:11
- (D) OTHER INFORMATION:/note= "2-substituted sugar"

(ix) FEATURE:

- (A) NAME/KEY: modified_base
- (B) LOCATION:12
- (D) OTHER INFORMATION:/mod_base= OTHER
/note= "5-methylcytosine"

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION:12

(D) OTHER INFORMATION:/note= "2'-substituted sugar"

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION:13

(D) OTHER INFORMATION:/note= "2'-substituted sugar"

(ix) FEATURE:

(A) NAME/KEY: modified_base

(B) LOCATION:14

(D) OTHER INFORMATION:/mod_base= OTHER
/note= "5-methylcytosine"

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION:14

(D) OTHER INFORMATION:/note= "2'-substituted sugar"

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 7:

TTTTTCTCTC TCTCT

15

(2) INFORMATION FOR SEQ ID NO: 8:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 15 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: other nucleic acid

(A) DESCRIPTION: /desc = "oligonucleotide"

(ix) FEATURE:

(A) NAME/KEY: misc_feature

- (B) LOCATION:1..14
- (D) OTHER INFORMATION:/note= "2'-substituted sugar"

(ix) FEATURE:

- (A) NAME/KEY: modified_base
- (B) LOCATION:6
- (D) OTHER INFORMATION:/mod_base= OTHER
/note= "5-methylcytosine"

(ix) FEATURE:

- (A) NAME/KEY: modified_base
- (B) LOCATION:8
- (D) OTHER INFORMATION:/mod_base= OTHER
/note= "5-methylcytosine"

(ix) FEATURE:

- (A) NAME/KEY: modified_base
- (B) LOCATION:10
- (D) OTHER INFORMATION:/mod_base= OTHER
/note= "5-methylcytosine"

(ix) FEATURE:

- (A) NAME/KEY: modified_base
- (B) LOCATION:12
- (D) OTHER INFORMATION:/mod_base= OTHER
/note= "5-methylcytosine"

(ix) FEATURE:

- (A) NAME/KEY: modified_base
- (B) LOCATION:14
- (D) OTHER INFORMATION:/mod_base= OTHER
/note= "5-methylcytosine"

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 8:

TTTTTCTCTC TCTCT

(2) INFORMATION FOR SEQ ID NO: 9:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 15 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: other nucleic acid

- (A) DESCRIPTION: /desc = "oligonucleotide"

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION:5..14
- (D) OTHER INFORMATION:/note= "2'-substituted sugar"

(ix) FEATURE:

- (A) NAME/KEY: modified_base
- (B) LOCATION:6
- (D) OTHER INFORMATION:/mod_base= OTHER
/note= "5-methylcytosine"

(ix) FEATURE:

- (A) NAME/KEY: modified_base
- (B) LOCATION:8
- (D) OTHER INFORMATION:/mod_base= OTHER
/note= "5-methylcytosine"

(ix) FEATURE:

- (A) NAME/KEY: modified_base
- (B) LOCATION:10
- (D) OTHER INFORMATION:/mod_base= OTHER
/note= "5-methylcytosine"

(ix) FEATURE:

- (A) NAME/KEY: modified_base
- (B) LOCATION:12
- (D) OTHER INFORMATION:/mod_base= OTHER
/note= "5-methylcytosine"

(ix) FEATURE:

- (A) NAME/KEY: modified_base
- (B) LOCATION:14
- (D) OTHER INFORMATION:/mod_base= OTHER
/note= "5-methylcytosine"

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 9:

TTTTTCTCTC TCTCT

15

(2) INFORMATION FOR SEQ ID NO: 10:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 15 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: other nucleic acid

- (A) DESCRIPTION: /desc = "oligonucleotide"

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION:11
- (D) OTHER INFORMATION:/note= "2'-substituted sugar"

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 10:

AGAGAGAGAG AAAAA

15

(2) INFORMATION FOR SEQ ID NO: 11:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 15 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: other nucleic acid

- (A) DESCRIPTION: /desc = "oligonucleotide"

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION:3
- (D) OTHER INFORMATION:/note= "2'-substituted sugar"

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION:5
- (D) OTHER INFORMATION:/note= "2'-substituted sugar"

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION:7
- (D) OTHER INFORMATION:/note= "2'-substituted sugar"

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION:9
- (D) OTHER INFORMATION:/note= "2'-substituted sugar"

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION:11
- (D) OTHER INFORMATION:/note= "2'-substituted sugar"

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 11:

AGAGAGAGAG AAAAA

15

(2) INFORMATION FOR SEQ ID NO: 12:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 15 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: other nucleic acid

(A) DESCRIPTION: /desc = "oligonucleotide"

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION:11..14
- (D) OTHER INFORMATION:/note= "2'-substituted sugar"

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 12:

AGAGAGAGAG AAAAA

15

(2) INFORMATION FOR SEQ ID NO: 13:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 15 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: other nucleic acid

(A) DESCRIPTION: /desc = "oligonucleotide"

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION:2..11

(D) OTHER INFORMATION:/note= "2'-substituted sugar"

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 13:

AGAGAGAGAG AAAAA

15

(2) INFORMATION FOR SEQ ID NO: 14:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 13 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: other nucleic acid

(A) DESCRIPTION: /desc = "oligonucleotide"

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION:4

(D) OTHER INFORMATION:/note= "2'-substituted sugar"

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION:6

(D) OTHER INFORMATION:/note= "2'-substituted sugar"

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION:12

(D) OTHER INFORMATION:/note= "2'-substituted sugar"

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 14:

AGGTGTCCGC ATC

13

(2) INFORMATION FOR SEQ ID NO: 15:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 16 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: other nucleic acid

(A) DESCRIPTION: /desc = "oligonucleotide"

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION:13..15

(D) OTHER INFORMATION:/note= "2'-substituted sugar"

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 15:

TCCAGGTGTC CGTTTC

16

(2) INFORMATION FOR SEQ ID NO: 16:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 21 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: other nucleic acid

(A) DESCRIPTION: /desc = "target DNA"

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 16:

GCTAAAAAGA GAGAGAGATC G

21

(2) INFORMATION FOR SEQ ID NO: 17:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 21 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: other nucleic acid

(A) DESCRIPTION: /desc = "opposite strand of target
DNA"

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 17:

CGATCTCTCT CTCTTTTTCAG C

21

(2) INFORMATION FOR SEQ ID NO: 18:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 20 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: other nucleic acid

(A) DESCRIPTION: /desc = "oligonucleotide"

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION:1..20

(D) OTHER INFORMATION:/note= "phosphorothioate backbone"

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION:2

(D) OTHER INFORMATION:/note= "2'-substituted sugar"

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION:4

(D) OTHER INFORMATION:/note= "2'-substituted sugar"

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION:15

(D) OTHER INFORMATION:/note= "2'-substituted sugar"

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION:17

(D) OTHER INFORMATION:/note= "2'-substituted sugar"

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION:19

(D) OTHER INFORMATION:/note= "2'-substituted sugar"

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 18:

TCCCGCCTGT GACATGCATT

20

(2) INFORMATION FOR SEQ ID NO: 19:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 20 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: other nucleic acid

- (A) DESCRIPTION: /desc = "oligonucleotide"

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION:6..15
- (D) OTHER INFORMATION:/note= "phosphorothioate backbone"

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION:1..5
- (D) OTHER INFORMATION:/note= "2'-substituted sugar"

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION:15..19
- (D) OTHER INFORMATION:/note= "2'-substituted sugar"

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 19:

TCCCGCCTGT GACATGCATT

20

(2) INFORMATION FOR SEQ ID NO: 20:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 20 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: other nucleic acid

- (A) DESCRIPTION: /desc = "oligonucleotide"

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION:1..20
- (D) OTHER INFORMATION:/note= "phosphorothioate backbone"

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION:1..5
- (D) OTHER INFORMATION:/note= "2'-substituted sugar"

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION:15..19
- (D) OTHER INFORMATION:/note= "2'-substituted sugar"

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 20:

TCCCGCCTGT GACATGCATT

20

(2) INFORMATION FOR SEQ ID NO: 21:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 20 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: other nucleic acid

(A) DESCRIPTION: /desc = "oligonucleotide"

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION:6..15

(D) OTHER INFORMATION:/note= "phosphorothioate backbone"

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION:1..5

(D) OTHER INFORMATION:/note= "2'-substituted sugar"

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION:15..19

(D) OTHER INFORMATION:/note= "2'-substituted sugar"

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 21:

TCCCGCCTGT GACATGCATT

20

(2) INFORMATION FOR SEQ ID NO: 22:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 20 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: other nucleic acid

(A) DESCRIPTION: /desc = "oligonucleotide"

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION:1..20
- (D) OTHER INFORMATION:/note= "phosphorothioate backbone"

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION:1..5
- (D) OTHER INFORMATION:/note= "2'-substituted sugar"

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION:15..19
- (D) OTHER INFORMATION:/note= "2'-substituted sugar"

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 22:

TCCCGCCTGT GACATGCATT